**Name:**

**Revisiting Lab Measurement**

**Materials:** water, 100 mL graduated cylinder, pipette, balance, pieces of string, spring scale, rock samples (smaller than graduated cylinder diameter)

**Procedure:**

1. Make sure your spring scale is zeroed before beginning. Tie a piece of string around your first rock sample and hang it from the spring scale to determine its weight in Newtons. Record this info in the data table.
2. Place exactly 50.0 mL of water into your graduated cylinder. (\*Note, you will need to use a pipette. Make sure to read the volume from the bottom of the meniscus and to estimate 1 digit; in this case make it 0.)
3. Now again use the string to carefully lower it into the cylinder until it is completely submerged. Again read the volume from the bottom of the meniscus and make a good estimate of your final digit. Subtract 50.0 mL from this new volume to calculate the exact volume of your rock. Record this in the data table.
4. Now use the triple beam balance to determine the mass of your first rock sample. Before placing the rock on the pan, make sure that all riders are locked into the zero position and the balance is zeroed. Begin by moving the largest mass 100 g at a time until the balance tips, then proceed using the smaller masses until you determine the exact final mass of the rock sample by adding all of the rider values.
5. For each sample, divide the mass by the volume to calculate density.

**(Data Table on Reverse)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample #** | **Weight (N)** | **Volume (mL)** | **Mass (g)** | **Density (g/mL)** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |
| **5** |  |  |  |  |
| **6** |  |  |  |  |
| **7** |  |  |  |  |
| **8** |  |  |  |  |

**Questions:**

1. Begin by comparing your results to a group who is close by. It is likely that your measurements are similar, but very statistically unlikely that your measurements are identical. Please explain how they compare and why.
2. In this lab we’ve focused on accuracy and precision. Please explain what these terms mean.
3. In this lab we measured the weight and mass of various samples. (These are related, but not the same) Again, please explain what these terms mean.